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10/765,737	01/27/2004	Carl A. Reiser	C-3363	1103

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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CARL A. REISER

Appeal 2009-012813
Application 10/765,737
Technology Center 1700

Decided: June 16, 2010

Before TERRY J. OWENS, PETER F. KRATZ, and MARK NAGUMO,
Administrative Patent Judges.

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-5, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellant claims a method and apparatus for reducing performance degradation due to hydrogen starvation of a fuel cell power plant. Claim 1 is illustrative:

1. A method of reducing performance degradation due to hydrogen starvation of a fuel cell power plant providing electrical power to a load, comprising:

providing fuel reactant gas to fuel reactant gas flow fields of the fuel cell power plant;

purging to ambient, at least periodically, at least a small amount of partially depleted fuel reactant gas exiting from said flow fields;

sensing the direction of flow of gas between said flow fields and ambient; and

disconnecting the electrical load from the fuel cell stack in the event that there is no flow of gas from said flow fields toward ambient.

The References

de Vaal	6,815,101 B1	Nov. 9, 2004 (filed Jul. 25, 2001)
Gast	2005/0161520 A1	Jul. 28, 2005 (PCT filed Feb. 24, 2003)

The Rejection

The claims stand rejected as follows: claims 1, 2, 4 and 5 under 35 U.S.C. § 102(e) over de Vaal; claims 1 and 4 under 35 U.S.C. § 103 over de Vaal; and claim 3 under 35 U.S.C. § 103 over de Vaal in view of Gast.

OPINION

We reverse the rejections.

Issue

Has the Appellant indicated reversible error in the Examiner's determination that de Vaal discloses, or would have rendered prima facie obvious, to one of ordinary skill in the art, disconnecting the electrical load from a fuel cell stack when there is no flow of gas from fuel reactant gas flow fields toward ambient?

Findings of Fact

De Vaal stops operation of a fuel cell system "in response to either a low oxygen concentration or a high hydrogen concentration in the ambient atmosphere" (col. 14, ll. 48-51).

Analysis

Rejection under 35 U.S.C. § 102(e)

The Examiner argues that "[b]y measuring the concentration, as described in the reference, flow is clearly taught and established" (Ans. 13) and that "[b]y measuring the hydrogen content, flow from the fuel cell is sensed" (Ans. 15). The Examiner argues that de Vaal "discloses disconnecting the electrical load from the fuel cell stack in response to a low gas concentration in the ambient atmosphere (column 14, lines 48-51). The phrase 'low gas flow' encompasses the claimed limitation 'no gas flow'" (Ans. 5).

The Appellant argues that measuring hydrogen concentration in the ambient air is not measuring hydrogen flow as hydrogen flows into the ambient air, and that de Vaal does not disclose disconnecting the electrical load in the event that there is no flow (Br. 8; Reply Br. 5).

The Examiner apparently considers de Vaal's measured low oxygen concentration to indicate low gas flow, including zero gas flow, such that

when de Vaal stops operation of the fuel cell system in response to a sufficiently low oxygen concentration (col. 14, ll. 48-51), the operation is being stopped in response to no gas flow. That argument is not well taken because the Examiner has not established that the oxygen concentration is related to the gas flow rate, as opposed to the oxygen concentration and the gas flow rate being separate variables which can be changed independently such that a stream having a low oxygen concentration can have a high gas flow rate.¹

Rejections under 35 U.S.C. § 103

The Examiner argues that it would have been

obvious to disconnect the electrical load from the fuel cell when no gas flow is sensed so as not to damage the fuel cell due to lack of necessary gases and/or damage the load by continuing operation under conditions in which the fuel cell is not providing an uninterruptible power supply for the load (column 14, lines 48-51). Certainly, one skilled in the art would understand from these teachings that if low gas flow may damage the fuel cell load, then no gas flow would inflict the same damage

(Ans. 11).

The Appellant argues that there is nothing in the record to suggest disconnecting the electrical load when no gas flow is sensed (Br. 6).

The support relied upon by the Examiner for the argument that de Vaal teaches that low gas flow may damage the fuel cell is de Vaal's column 14, lines 48-51 (Ans. 11). That portion of de Vaal, however,

¹ de Vaal discloses that the venting of hydrogen preferably is limited to a rate such as less than 1 liter/minute to prevent the ambient environment monitoring and control systems from triggering a failure or a fault (col. 8, ll. 33-38), but de Vaal does not disclose shutting down the system in response to no hydrogen flow.

discloses stopping fuel cell operation in response to either a low oxygen concentration or a high hydrogen concentration in the ambient atmosphere. It does not disclose shutting down the fuel cell system in response to low gas flow. Thus, the Examiner has not provided a factual basis for the Examiner's conclusion that it would have been obvious to one of ordinary skill in the art to shut down de Vaal's fuel cell system in response to no gas flow. *See In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967) ("A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art").

Conclusion of Law

The Appellant has indicated reversible error in the Examiner's determination that de Vaal discloses, or would have rendered prima facie obvious, to one of ordinary skill in the art, disconnecting the electrical load from a fuel cell stack when there is no flow of gas from fuel reactant gas flow fields toward ambient.

DECISION/ORDER

The rejections of claims 1, 2, 4 and 5 under 35 U.S.C. § 102(e) over de Vaal, claims 1 and 4 under 35 U.S.C. § 103 over de Vaal, and claim 3 under 35 U.S.C. § 103 over de Vaal in view of Gast are reversed.

It is ordered that the Examiner's decision is reversed.

REVERSED

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